# Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD B01-063 H1323

DATE RECEIVED: 04/20/01 LVL LOT # :0104L576

CLIENT ID /ANALYSIS	TAT #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11TV8						
PH PH	001 001 REP	W W	01LPH031 01LPH031	04/16/01 04/16/01	04/27/01 04/27/01	04/27/01 04/27/01
B11TV9						
РН	002	W	01LPH031	04/16/01	04/27/01	04/27/01
B11TW0						
РН	003	W	01LPH031	04/16/01	04/27/01	04/27/01
B11TW1						
РН	004	OI	01LPH031	04/16/01	04/27/01	04/27/01







# **Analytical Report**

Client: TNU-HANFORD B01-063 H1323

W.O.#: 11343-606-001-9999-00

LVL#: 0104L576

Date Received: 04-20-01

### **INORGANIC NARRATIVE**

1. This narrative covers the analysis of 1 oil and 3 water samples.

- 2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
- 3. Sample holding times as required by the method and/or contract were met.
- 4. The cooler temperature was recorded on the chain of custody.
- 5. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.
- 6. The result for sample B11TW1 was reported based upon a pH paper determination due to the coating effect of the sample matrix on the pH probe.
- 7. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Deputy Laboratory Manager

Lionville Laboratory Incorporated

njp\i04-576

05-07-01

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

# Lionville Laboratory Incorporated

# WET CHEMISTRY

# METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	D2216-80		
% Moisture			ILMO4.0 (e)
% Solids	D2216-80	·	ILMO4.0 (e)
% Volatile Solids	— D2216-80		_ ``
ASTM Extraction in Water	D3987-81/85		
BTU	D240-87		• •
CEC	<del></del>	9081	c
Chromium VI		3060A/7196A	
Corrosivity by coupon by pH		1110(mod) 9045C	
Cyanide, Total		9010B	ILMO4.0 (e)
Cyanide, Reactive		Section 7.3/9014	<u> </u>
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity		1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease		9071A	
Carbon, Total Organic		9060	_ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod)	5050	
Petroleum Hydrocarbons, Total Rec	overable	9071	EPA 418.1
pH, Soil		1 9045C / 9041A (med.	)
Sulfide, Reactive		Section 7.3/9030B	
Sulfide		9030B(mod)	
Specific Gravity	D1429-76C/ _	D5057-90	
Sulfur, Total		9056	
Synthetic Preparation Leach		1312	
Paint Filter		9095A	
Other:	Method:		
Other:	Method		

# Lionville Laboratory Incorporated

# METHOD REFERENCES AND DATA QUALIFIERS

# DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

# **ABBREVIATIONS**

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

# ANALYTICAL WET CHEMISTRY METHODS

- 1. ASTM Standard Methods.
- USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. <u>Test Methods for Evaluating Solid Waste</u> (USEPA SW-846).
- a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
- b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
- c. <u>Method of Soil Analysis</u>, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
- d. <u>Method of Soil Analysis</u>, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

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Lionville Lababoratory, Inc.

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CPIENT: INCHANGORD BO1-063 H1323

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# INORGANICS PRECISION REPORT 05/07/01

CLIENT: TNUHANFORD B01-063 H1323

LVL LOT #: 0104L576

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
	*====**====	*********		======	*****	
-001RBP	B11TV6	рH	5.4	5.3	2.0	1.0

Lionville Labo		Use Only	Custo	dy T										Re	equ	es	<b>t</b> Page	10	of _\		O	$\underline{V}$	L	
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Est. Final Pr	ој. Ѕел	npling Date	<u></u>				[	#/Туре	Conta	iner	Liquid	IAG.	LIAC.	100		IfG.		12		<del> </del>	<del>  </del> -		ļ	┼
Project #	134	3- Coclo-	<u>-001-c</u>	1999-0	00						Solid		<u> </u>					<del> </del>	<del>  -</del>	<del> </del>	<del>  </del>		<b> </b>	┼
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Date Rec'd	4	<u>-6001</u>	Date Due .	42	ر. <u>101</u>	·		ANALY REQUI		, —	-	VOA	-	Pest	Herb			Metai	g			111		
MATRIX	T	T		·		Metr	rix		T				<u> </u>		1		Lionville L	aborat	ory U	only	y	111		
CODES: S - Soil SE - Sediment	Lab ID	CI	lient ID/Desci	iption		Chos (V	en	Metrix		nte ected	Time Collected	THOUS X	OLECCH	OPCB		46.		mrt()						
SO - Solid SL - Sludge						MS	MSD					8	0	O,		Н		15		<del> </del>	<del>  </del>	<del></del> -	<del>                                     </del>	┼
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												ر						2)	ן כינ. Pridina	ירברוריו מיסוריוריוניו	1.3808	Package ( 3) Present	Y or	N
											•						***	3)	Receiv	ed <u>in</u> G	ood		(A 1 OL	
									٠						•••	- 1	ondibie Sample	€⁄or ns		4) Unbrok Sample (-		t)		
Relinquishe by	Relinquished Received Date Time Relinquished by				ned		6 Recei		D	ate	Tim	10	Samp	les Lat	s Between pels and	P <sub>i</sub>	roperly	Preserve (Y) or ed With	ed N	COC Res Upon Sac	of Pre	sent e t		
Fritzx		Thoppel	10051	OSPO	CON		<b>S</b> FTE	<u> </u>		<u> </u>	RIBI	MA1			COC NOTI		1? Y or (N	) H	oldinų f	i <b>mes</b> or	N	Cooler Lemp 6	· 1	c.

COMPOSITE WASTE

Cooler 6 . C

4235 7954 3808

Bechtel Hanfo	ord Inc.	CF	HAIN OF CUST	rody/s	<b>AMPLE</b>	ANAL	YSIS	RE	QUEST	Γ	В	01-063-4	Page 1	of <u>I</u>	
Collector THOMAS GS		Compa	nny Contact CH JA	Telephon				Proj	ject Coordii NT, SJ	nator	rice Code	3D	Data Tu	rnaround	
Project Designation 600-23 Anomalous Waste C	Characterization - Other Li		ing Location -23 DIG SITE	· · · · · · · · · · · · · · · · · · ·				SAF B01	No. -063	A	ir Qualit	у []	70	lays_	
Ice Chest No. BHI	-94 zo		Logbook No. 1518	Y	RUSSABLESS Method of S FED EX						ent				
Shipped T TMA/RECRA		Offsite	Property No.	Ø102	25Ø	• " _ [		Bill	of Lading/	Air Bill No.	195	4 -	38	N8	
POSSIBL <del>E S</del> AMPLE HAZ	ARDS/REMARKS		Preservation	Cool 4C	C None ZTU	B Cool 4C									
			Type of Container	Gs*	AG	aG							-		
·			No. of Container(s)	+	1	ī						1			
Special Handling and/or Sto	orage		Volume	40mL	120mL	1000mL							1	:	
	SAMPLE ANALY	YSIS		VOA - \$260A (TCL)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL)				Treat	to				
Sample No.	Matrix *	Sample Date	Sample Time				i de la companya di salah di s	147			4	<b>各等的</b> 。	r.Mgr (#H	0 	
B11TV8	OTHER LIQUID	4/16/01	0867	x	×	×				B//T	0				
B11TV9	OTHER LIQUID	1/14/01	0825	X	×	×				BITT	11		-		
B11TW0	OTHER LIQUID	4/16/01	0910	X	<b>x</b>	×				8/17	2	<u> </u>			
					]						ļ		ļ <u>.</u>		
				<u></u>	<u> </u>										
Relinquished By  Relinquished By	Date/Time  Date/Time  Date/Time  Date/Time  Date/Time	Received By  Received By	Pof 28 4/16  RThores  Do  Toppe 4:00	pate/Time 153	30	COHE	ples st ping Fector n	ored Sacilit	in Ref.#	relinquish pment.	samples ?	910	!	Matrix *  S Soil SI. Sediment SO Solid SI. Sediment SO Solid SI. Sediment W Water O foll A Air DN Drum Solide DI Drum I inpide I fissue MI Wipe I Cipid Vegetation Veloci	
SECTION			<u> </u>												
FINAL SAMPLE Disposal N DISPOSITION	Aethod					Dispos	sed By					1):	ate/Time		

Collegras GS	1		any Contact RCH JA	Telephon 509-37	ie No. 73-5904			TRENT, SJ	Pr	rice Code	<b></b>	Data 14	11181 0944
Project Designation 600-23 Anomalous Waste C	Characterization - Other L		ing Location -23 DIG SITE					SAF No. B01-063	Ai	ir Quality	/ [")	7 day.	<i>5</i>
Ice Chest No. BH1	-94 (z		Logbook No. 1518		COA R600232E	00		Method of Ships FED EX	sent .				
Shipped To TMA/RECRA		Offsite	e Property No.	t410	250	<u> </u>		Bill of Lading/A	is Bill No.	1951	-		
POSSIBLE SAMPLE HAZ	'ARDS/REMARKS	•	Preservation	None	En 4/Ale	Cool 4C		Pa	nge∠of <u>l</u>	_ represents	s custody tr	on site analys ransfer to RC	is. F
		1	Type of Container	P	2	aG		lal	beled for o	was picked off-site analy	ysis. A new	COC was	
		1	No. of Container(s)	1		1		Pa	age   of ,	Z represen	nts custody		RT
Special Handling and/or St	orage	!	Volume	120mL	200 WI	1000mL	ļ	on	isite labori	ntory for die	rected anal	ysis.	411901
	SAMPLE ANAL	LYSIS	<u></u> _	pH (Soil) + 9045	See item (1) in Special Instructions	PCBs - 80\$2							
									-	Vied To	,		
Sample No.	Matrix *	Sample Date	Sample Time	N. W	<b>建</b>	Harris	2 <b>6</b> %	<b>经租赁</b>	4.5 MP;	1 (A)	E CONTRACTOR OF THE PARTY OF TH	· 子称 · 维	No. of
B11TW1	OTHER LIQUID	4/14/01	1220	X	X	X				BILTV	3		
B11TW2	OTHER LIQUID	et 4/19/0	<b>x</b>	<b>↓</b>	<del> </del>	<u> </u>	<b> </b>			<del> </del>	<del> </del>	<del></del>	<del> </del>
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CHAIN OF POSSESSI	ION	Sign/Print	Names 15	4/16/01	SPEC	CIAL INSTR	UCTIO	)NS			<del></del>	<u></u>	Matrix •
Relinquished By  Ares thomas thus  Relinquished By  Retirquished By	Date/Time OCA  28 4/19/6/ 28 4/19/6/ 28 4/19/6/ 28 4/19/6/	Received By	RThorag	ate/Time ()	Merci	ury -7470 - (C	:V) `	L); KCP Metals - 6010	•		d, Sclenium,	Thallium;	S Soil SE Soliment SO Solid S Shalge W " Water O Oil A Air DS Drum Solids DE Drum Liquids
Relinquished By Relinquished By	Date/Time Date/Time	Received By Received By	1005 P 2001	Samples stored in Ref.# 2Bat the 3728 Shipping Facility on 4/16/11. Collector not available to relinquish samples on 4/16/10/ for shipment							61	T Tissue WI: Wipe L. Liquid V Vegetation V Other	
Relinquished By	Date/Time	Received By	Da	rate/Time	$\dashv$	— <b>-</b>	<b>-</b> -			4116	sict.		
LABORATORY Received	Ву			Titt	le							Date/Time	· · · · · · · · · · · · · · · · · · ·
FINAL SAMPLE Disposal I	Method					l Xispos	ied lly	4.				Date/Time	

# Figure 1. Sample Check-in List

Date/Time Received: 420-01 0920	•
SDG#: 01041576	· -
Work Order Number:	SAF# B01-063
Shipping Container ID: BHI-94	Chain of Custody # Project 63-4,5
1. Custody Seals on shipping container intact?	Yes J] No []
2. Custody Seals dated and signed?	Yes 11 No []
3. Chain-of-Custody record present?	Yes LY No []
4. Cooler temperature (c.	10(-
5. Vermiculite/packing materials is	Wet [] Dry []
6. Number of samples in shipping container:	
7. Sample holding times exceeded?	Yes [] No []
	hazard labels appropriate sample labels
9. Samples are: in good conditionbroken	leaking _have air bubbles
<ul><li>10. Were any anomalies identified in sample rec</li><li>11. Description of anomalies (include sample no</li></ul>	
Sample Custodian/Laboratory: Theppe	/ LULT Date: 4-20-0]  On By
Telephoned to:	•



# Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B01-063 H 1323

DATE RECEIVED: 04/20/01 LVL LOT # :0104L576

CLIENT ID /ANALYSIS	LVL #	# MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11TW1						. •
SILVER, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
SILVER, TOTAL	004 1	REP OI	01L0217	04/16/01	04/25/01	04/25/01
SILVER, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
ALUMINUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
ALUMINUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
ALUMINUM, TOTAL	004 I	MS OI	01L0217	04/16/01	04/25/01	04/25/01
ARSENIC, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
ARSENIC, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
ARSENIC, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
BARIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
BARIUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
BARIUM, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
BERYLLIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
BERYLLIUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
BERYLLIUM, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
CALCIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
CALCIUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
CALCIUM, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
CADMIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
CADMIUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
CADMIUM, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
COBALT, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
COBALT, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
COBALT, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
CHROMIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
CHROMIUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
CHROMIUM, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
COPPER, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
COPPER, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
COPPER, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
IRON, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
IRON, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
IRON, TOTAL	004	MS OI	01L0217	04/16/01	04/25/01	04/25/01
MERCURY, TOTAL	004	OI	01C0115	04/16/01	04/24/01	04/25/01
MERCURY, TOTAL	004	REP OI	01C0115	04/16/01	04/24/01	04/25/01

# Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B01-063

LVL LOT # :0104L576 DATE RECEIVED: 04/20/01

CLIENT ID /ANALYSIS	LVL #	# MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	004 M	AS OI	01C0115	04/16/01	04/24/01	04/25/01
POTASSIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
POTASSIUM, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
POTASSIUM, TOTAL	004 M	MS OI	01L0217	04/16/01	04/25/01	04/25/01
MAGNESIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
MAGNESIUM, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
MAGNESIUM, TOTAL	004 N	MS OI	01L0217	04/16/01	04/25/01	04/25/01
MANGANESE, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
MANGANESE, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
MANGANESE, TOTAL	004 N	MS OI	01L0217	04/16/01	04/25/01	04/25/01
SODIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
SODIUM, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
SODIUM, TOTAL	004 N	MS OI	01L0217	04/16/01	04/25/01	04/25/01
NICKEL, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
NICKEL, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
NICKEL, TOTAL	004 N	MS OI	01L0217	04/16/01	04/25/01	04/25/01
LEAD, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
LEAD, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
LEAD, TOTAL	004 N	MS OI	01L0217	04/16/01	04/25/01	04/25/01
ANTIMONY, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
ANTIMONY, TOTAL	004 H	REP OI	01L0217	04/16/01	04/25/01	04/25/01
ANTIMONY, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
SELENIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
SELENIUM, TOTAL	004 F	REP OI	01L0217	04/16/01	04/25/01	04/25/01
SELENIUM, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
THALLIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
THALLIUM, TOTAL	004 1	REP OI	01L0217	04/16/01	04/25/01	04/25/01
THALLIUM, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
VANADIUM, TOTAL	004	OI	01L0217	04/16/01	04/25/01	04/25/01
VANADIUM, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
VANADIUM, TOTAL	004 1	MS OI	01L0217	04/16/01	04/25/01	04/25/01
ZINC, TOTAL	004		01L0217	04/16/01	04/25/01	04/25/01
ZINC, TOTAL	004	REP OI	01L0217	04/16/01	04/25/01	04/25/01
ZINC, TOTAL	004	MS OT	01L0217	04/16/01	04/25/01	04/25/01

SILVER LABORATORY	LC1 BS	s	01L0217	N/A	04/25/01	04/25/01
SIDARK DWOOKHOKI	TOT DO	_	0.44044.	/	01,20,01	01,20,02

# Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B01-063

DATE RECEIVED: 04/20/01

LVL LOT # :0104L576

CLIENT ID /ANALYSIS	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	MB1		s	01L0217	N/A	04/25/01	04/25/01
ALUMINUM LABORTORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
ALUMINUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
ARSENIC LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
ARSENIC, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
BARIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
BARIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
BERYLLIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
BERYLLIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
CALCIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
CALCIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
CADMIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
CADMIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
COBALT LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
COBALT, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
CHROMIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
CHROMIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
COPPER LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
COPPER, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
IRON LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
IRON, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
MERCURY LABORATORY	LC1	BS	S	01C0115	N/A	04/24/01	04/25/01
MERCURY, TOTAL	MB1		S	01C0115	N/A	04/24/01	04/25/01
POTASSIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
POTASSIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
MAGNESIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
MAGNESIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
MANGANESE LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
MANGANESE, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
SODIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
SODIUM, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
NICKEL LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
NICKEL, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
LEAD LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
LEAD, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
ANTIMONY LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01
ANTIMONY, TOTAL	MB1		S	01L0217	N/A	04/25/01	04/25/01
SELENIUM LABORATORY	LC1	BS	S	01L0217	N/A	04/25/01	04/25/01

# Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B01-063

DATE RECEIVED: 04/20/01

LVL LOT # :0104L576

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	MB1	s	01L0217	N/A	04/25/01	04/25/01
THALLIUM LABORATORY	LC1 BS	S	01L0217	N/A	04/25/01	04/25/01
THALLIUM, TOTAL	MB1	S	01L0217	N/A	04/25/01	04/25/01
VANADIUM LABORATORY	LC1 BS	S	01L0217	N/A	04/25/01	04/25/01
VANADIUM, TOTAL	MB1	S	01L0217	N/A	04/25/01	04/25/01
ZINC LABORATORY	LC1 BS	S	01L0217	N/A	04/25/01	04/25/01
ZINC, TOTAL	MB1	s	01L0217	N/A	04/25/01	04/25/01



# **Analytical Report**

Client: TNU-HANFORD B01-063

**W.O.**#: 11343-606-001-9999-00

LVL#: 0104L576

Date Received: 04-20-01

SDG/SAF#: H1323/B01-063

### METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 oil sample.

- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
- 3. All analyses were performed within the required holding times.
- 4. The cooler temperature has been recorded on the Chain of Custody.
- 5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
- 6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
  - a.) The MB result for Sodium was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and the sample read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.
- 8. All ICP Interference Check Standards were within control limits.
- 9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
- 10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

- 11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- 12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- 13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.
- 14. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

Iain Daniels

Deputy Laboratory Manager

Lionville Laboratory Incorporated

gmb/m04-576

<u> 25-07-01</u>

Date



# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 〇10日 L 5つ い											
Leaching Procedu	re:131013111	312 _Other:									
CLP Metals Di	gestion and Analysis	Methods:ILM(	03.0 _ILM04.0	0							
Metals Digestion N	Methods:3005A3 Other: _	010A30153	020A \( \sqrt{3050B} \)	3051	_200.7SS17						
	M	etals Analysis M	ethods								
		-		EPA							
	SW846	EPA	STD MTD	OSWR	USATHAMA						
Aluminum	$\sqrt{6010B}$	200.7			99						
Antimony	∠6010B7041 <sup>s</sup>	200.7204.2			99						
Arsenic	√6010B7060A <sup>5</sup>	200.7206.2	_3113B		99						
Barium	<u>√6010B</u>	200.7	•		99						
Beryllium	<b>∠6010B</b>	200.7			99						
Bismuth	6010B ¹	200.7 1		1620	99						
Boron	6010B	200.7			99						
Cadmium	✓6010B7131A <sup>5</sup>	_200.7 _213.2			99						
Calcium	6010B	200.7			99						
Chromium Cobalt	<b>∠6010B _7191</b> ' <b>∠6010B</b>	$     \begin{array}{ccccccccccccccccccccccccccccccccc$			SS17						
Copper	6010B 7211 5	200.7 200.7			99 99						
Iron	6010B/211	200.7			99						
Lead	6010B 7421 °	200.7 200.7239.2	3113B								
Lithium	6010B 7430 4	200.7		1620							
Magnesium		200.7			99						
Manganese	6010B	200.7									
Mercury	_7470A 3 <u>/</u> 7471A 3				99						
Molybdenum	6010B				<u>_</u> 99						
Nickel	<i>Zg</i> 010B	200.7			<u>_</u> 99						
Potassium	Z6010B _7610 *	200.7258.1	4		<b>99</b>						
Rare Earths	6010B ¹	200.7 1		1620	<u>99</u>						
Selenium	<b>∠6010B</b> 7740 °	200.7270.2	3113B		99						
Silicon	6010B <sup>1</sup>	200.7		1620	99						
Silica	6010B	200.7		1620	99						
Silver	<u></u>	200.7272.2			99						
Sodium	<u>√6010B</u> 7770 '	200.7273.1	4		99						
Strontium	_6610B	200.7			_99						
Thallium	<u>√6010B</u> <u></u> _7841 <sup>5</sup>	200.7279.2	200.9		99						
Tin	6010B	200.7			99						
Titanium	6010B	200.7		1/00	99						
Uranium Vanadium	_6010B ¹ _6010B	200.7 ¹		1620	99						
Vanadium Zinc	6010B	200.7 200.7			99 99						
Zinc Zirconium	6010B <sup>1</sup>	200.7 200.7 ¹		1620							
en contant	TANIAD -			1020	99						

Method:

Other:\_\_\_\_

007

L-WI-033/M-03/01

# METHOD REFERENCES AND DATA QUALIFIERS

# **DATA QUALIFIERS**

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

# **ABBREVIATIONS**

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

# **ANALYTICAL METAL METHODS**

- 1. Not included in the method element list.
- 2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
- 3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
- 4. Flame AA.
- 5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

# INORGANICS DATA SUMMARY REPORT 04/26/01

CLIENT: TNU-HANFORD B01-063 LVL LOT #: 0104L576

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
***	*======================================		*======	*****		
-004	B11TW1	Silver, Total	0.1 u	MG/KG	0.1	1.0
		Aluminum, Total	1.3 u	MG/KG	1.3	1.0
	i e	Arsenic, Total	0.23 u	MG/KG	0.23	1.0
		Barium, Total	0.06	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Calcium, Total	10.7	MG/KG	0.80	1.0
		Cadmium, Total	0.16	MG/KG	0.03	1.0
		Cobalt, Total	0.08 u	MG/KG	80.0	1.0
		Chromium, Total	0.09 u	MG/KG	0.09	1.0
		Copper, Total	0.35	MG/KG	0.07	1.0
		Iron, Total	3.1	MG/KG	1.6	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	3.5 u	MG/KG	3.5	1.0
		Magnesium, Total	2.4	MG/KG	0.87	1.0
		Manganese, Total	0.20	MG/KG	0.01	1.0
		Sodium, Total	18.2	MG/KG	0.17	1.0
		Nickel, Total	0.48	MG/KG	0.12	1.0
		Lead, Total	4.2	MG/KG	0.26	1.0
		Antimony, Total	0.19 u	MG/KG	0.19	1.0
		Selenium, Total	0.26 u	MG/KG	0.26	1.0
		Thallium, Total	0.39 u	MG/KG	0.39	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zine, Total	333	MG/KG	0.03	1.0

### INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/26/01

CLIENT: TNU-HANFORD B01-063 LVL LOT #: 0104L576

					RBPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
		******************			********	
BLANK1	01L0217-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	1.3 u	NG/KG	1.3	1.0
		Arsenic, Total	0.23 u	MG/KG	0.23	1.0
		Barium, Total	0.02	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Calcium, Total	0.81 u	MG/KG	0.81	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.0B u	MG/KG	0.08	1.0
		Chromium, Total	0.17	MG/KG	0.09	1.0
		Copper, Total	0.07 u	MG/KG	0.07	1.0
		Iron, Total	1.6 u	MG/KG	1.6	1.0
		Potassium, Total	3.5 u	MG/KG	3.5	1.0
		Magnesium, Total	0.88 u	MG/KG	0.88	1.0
		Manganese, Total	0.03	MG/KG	0.01	1.0
		Sodium, Total	1.7	MG/KG	0.17	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.26 u	MG/KG	0.26	1.0
		Antimony, Total	0.19 u	MG/KG	0.19	1.0
		Selenium, Total	0.26 և	MG/KG	0.26	1.0
		Thallium, Total	0.39 u	MG/KG	0.39	1.0
		Vanadium, Total	0.07 u	MG/KG	0.07	1.0
		Zinc, Total	0.03 u	MG/KG	0.03	1.0
BLANK1	01C0115-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

### INORGANICS ACCURACY REPORT 04/26/01

CLIENT: TNU-HANFORD B01-063 LVL LOT #: 0104L576

			SPIKED	INITIAL	SPIKED		DILUTION	
SAMPLE	SITE ID	ANALYTE	SAMPLE	result	TMUOMA	*RECOV	factor (SPK)	
***	*****	医医性性坏疽医医医医医皮肤 计非常计算 医甲基	******		====##		*********	
-004	B11TW1	Silver, Total	4.8	0.1 u	4.9	98.0	1.0	
		Aluminum, Total	189	1.3 u	198	95.4	1.0	
		Arsenic, Total	182	0.23u	198	92.0	1.0	
		Barium, Total	166	0.06	198	95.2	1.0	
		Beryllium, Total	4.8	0.02u	4.9	98.0	1.0	
		Calcium, Total	2490	10.7	2480	100.2	1.0	•
		Cadmium, Total	4.9	0.16	4.9	96.7	1.0	
		Cobalt, Total	48.4	0.08u	49.5	97.8	1.0	
		Chromium, Total	19.6	0.09u	19.8	99.0	1.0	
		Copper, Total	24.0	0.35	24.8	95.3	1.0	
	•	Iron, Total	99.0	3.1	99.0	96.9	1.0	
		Mercury, Total	0.18	0.02u	0.17	7 107.8	1.0	
		Potassium, Total	2380	3.5 u	2480	96.1	1.0	
		Magnesium, Total	2410	2.4	2480	97.1	1.0	
		Manganese, Total	50.2	0.20	49.5	101.0	1.0	
		Sodium, Total	2350	18.2	2480	94.4	1.0	
		Nickel, Total	47.9	0.48	49.5	95.8	1.0	
		Lead, Total	51.0	4.2	49.5	94.5	1.0	
		Antimony, Total	47.8	0.19u	49.5	96.6	1.0	
		Selenium, Total	175	0.261	198	88.5	1.0	
		Thallium, Total	185	0.39u	198	93.4	1.0	
		Vanadium, Total	49.3	0.07u	49.5	99.6	1.0	
		Zinc, Total	378	333	49.5	90.9*	1.0	

### INORGANICS PRECISION REPORT 04/26/01

CLIENT: TNU-HANFORD B01-063 LVL LOT #: 0104L576

WORK ORDER: 11343-606-001-9999-00

			INITIAL				DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD		FACTOR (RBP)
**====0		***************		******			
-004REP	811 <b>TW1</b>	Silver, Total	0.1 u	0.1 u	NC		1.0
		Aluminum, Total	1.3 u	1.3 u	ИС		1.0
		Arsenic, Total	0.23u	0.23u	NC		1.0
		Barium, Total	0.06	0.05	17.2	•	1.0
		Beryllium, Total	0.02u	0.02u	NC		1.0
		Calcium, Total	10.7	8.9	18.4		1.0
		Cadmium, Total	0.16	0.15	5.1		1.0
		Cobalt, Total	0.08u	0.08u	NC		1.0
		Chromium, Total	0.09u	0.09u	NC		1.0
		Copper, Total	0.35	0.34	4.9		1.0
		Iron, Total	3.1	2.8	10.2		1.0
		Mercury, Total	0.02u	0.02	'n¢	200	1.0
		Potassium, Total	3.5 u	3.5 u	NC		1.0
		Magnesium, Total	2.4	3.2	28.6		1.0
		Manganese, Total	0.20	0.19	0.51		1.0
		Sodium, Total	18.2	10.5	53.7		1.0
		Nickel, Total	0.48	0.52	8.3		1.0
		Lead, Total	4.2	4.2	0.00		1.0
		Antimony, Total	0.19u	0.19u	NC		1.0
		Selenium, Total	0.26u	0.26u	NC		1.0
		Thallium, Total	0.39u	0.39u	NC		1.0
		Vanadium, Total	0.07u	0.07u	NC		1.0
		Zinc, Total	333	334	0.15		1.0

Mr 5/3/01

# INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/26/01

CLIENT: TNU-HANFORD B01-063 LVL LOT #: 0104L576

			SPIKED	SPIKED		
Sample	SITE ID	analyte	Sample	THUOMA	UNITS	RECOV
***====	*====			*****	====##	
LCS1	01L0217-LC1	Silver, LCS	48.6	50.0	MG/KG	97.2
		Aluminum, LCS	494	500	MG/KG	98.8
	•	Arsenic, LCS	924	1000	MG/KG	92.4
		Barium, LCS	485	500	MG/KG	97.0
		Beryllium, LCS	24.0	25.0	MG/KG	96.0
		Calcium, LCS	2410	2500	MG/KG	96.5
		Cadmium, LCS	24.0	25.0	MG/KG	96.0
		Cobalt, LCS	244	250	MG/KG	97.8
		Chromium, LCS	49.2	50.0	MG/KG	98.4
		Copper, LCS	123	125	MG/KG	98.5
		Iron, LCS	490	500	MG/KG	98.0
		Potassium, LCS	2470	2500	MG/KG	98.8
		Magnesium, LCS	2460	2500	MG/KG	98.3
		Manganese, LCS	76.2	75.0	MG/KG	101.6
		Sodium, LCS	2420	2500	MG/KG	96.8
		Nickel, LCS	193	200	MG/KG	96.7
		Lead, LCS	239	250	MG/KG	95,7
		Antimony, LCS	296	300	MG/KG	98.5
		Selenium, LCS	889	1000	MG/KG	88.9
		Thallium, LCS	953	1000	MG/KG	95.3
		Vanadium, LCS	253	250	MG/KG	101.1
		Zinc, LCS	95.4	100	MG/KG	95.4
LCS1	01C0115-LC1	Mercury, LCS	3.0	2.5	MG/KG	119.7

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# Custody Transfer Record/Lab Work Request Page 1 of 1



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SL - Sludge W - Water	<b>—</b>	BITTE				<u> </u>	0	4-14-0	10807							$\Box$		<del>                                     </del>				
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Bechtel Hanford Inc. CHAIN OF CU					COSTOD I SANIT DE ANADISIS REQUEST					Раде <u>1</u>	1 1		
Collector THOMAS GS			ny Contact CH JA	Telepho 509-3	ne No. 73-5904			Project Coord TRENT, SJ	mator	Price Code	3P	Data Tu	irnaround
Project Designation 600-23 Anomalou	s Waste Characterization - Other Lie		ng Location 23 DIG SITE				<u></u>	SAF No. B01-063		Air Quality	y []	7 dm/s	
Ice Chest No. R	H1-94 20	Field L	ogbook No. i518	RUBBABAEBB			Method of Ship FED EX						
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POSSIBLE SAMP	PLE HAZARDS/REMARKS		Preservation	Cool 4C	None ZTill	13 Cool 4C 1161							
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	SAMPLE ANALY	YSIS		VOA - 8260A (TCL)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL)							
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Sample No	o. Matrix *	Sample Date	Sample Time		1,320-18	<b>新</b> 等流	100		美華	事 : 被击	Part of the second		
B11TV8	OTHER LIQUID	4/16/01	0867	X	X	X			3//7			<b></b>	<u> </u>
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B11TW0	OTHER LIQUID	4/16/01	0910	<u>×</u>	-x-	×			<i>B117</i>	<u> 72 </u>	<del>-</del>	<del>{</del>	<b>-</b>
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Project Designation 600-23 Anomalous Waste C	haracterization - Other L		ing Location -23 DIG SITE					SAF No. B01-063	A	ir Quality		7dry	15
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Shipped To TMA/RECRA		Offsite	Property No.	(d10	250	<b>3</b>		Bill of Lading	/Ais Bill No	1951	<del>-</del>		•
POSSIBLE SAMPLE HAZ	ARDS/REMARKS		Preservation	None	None RT 41416	Cool 4C		i i	$Page Z_of_$	inally sent to represents	costody tr	ansfer to R	ysis. CF
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Special Handling and/or Sto	rage		Volume	120mL	200 MI	1000mL		<del></del>	offsite labor	atory for dir	ected anal	ransier to ysis. - {	411101
	SAMPLE ANAL	YSIS		pH (Sail) - 9045	See item (1) in Special Instructions	PCBs - 80\$2			<del> </del>				
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CHAIN OF POSSESSIO		, Sign/Prin	Names #5	4/12/01	SPEC	IAL INSTR	LICTION		<u> </u>	1	<u> </u>	<u> </u>	Matrix *
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FINAL SAMPLE Disposal Management of the Disposal	ethod					Dispos	sed By					Date/Time	

BHI-EE-011 (10/99)

# Lionville Laboratory, Inc. PCB ANALYTICAL DATA PACKAGE FOR TNUHANFORD B01-063 H1323

DATE RECEIVED: 04/20/01 LVL LOT # :0104L576

CLIENT ID	LVL #	MTX PREP #	COLLECTION EXTR/PREP	ANALYSIS
B11TW1	. 004	OI 01LE046	B 04/16/01 04/23/01	04/25/01
B11TW1	004 MS	OI 01LE046	8 04/16/01 04/23/01	04/25/01
B11TW1	004 MSD ·	OI 01LE046	8 04/16/01 04/23/01	
LAB QC:				
PBLKXJ	MB1	OI 01LE046	8 N/A 04/23/01	04/24/01
PBLKXJ	MB1 BS	OI 01LE046	8 N/A 04/23/01	04/24/01





# **Analytical Report**

Client: TNU HANFORD B01-063

LVL#: 0104L576

SDG/SAF#: H1296/B01-063

W.O.#: 11343-606-001-9999-00

Date Received: 04-20-01

### **PCB**

One (1) oil sample was collected on 04-16-01.

The sample and its associated QC samples were extracted on 04-23-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 04-24,25-01. The extraction procedure was based on method 3580A (Waste dilution, 1 g into 10 mLs hexane) and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. The cooler temperature has been recorded on the chain-of-custody.
- 2. All required holding times for extraction and analysis have been met.
- 3. The sample and its associated QC samples received a sulfuric acid cleanup.
- 4. The method blank was below the reporting limits for all target compounds.
- 5. All surrogate recoveries were within acceptance criteria.
- 6. The blank spike recovery was within acceptance criteria.
- 7. All matrix spike recoveries were within acceptance criteria.
- 8. All initial calibrations associated with this data set were within acceptance criteria.
- 9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 10. As of January 27, 2001, Recra Labnet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra Labnet Philadelphia.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.



- 11. <u>UCNVILLE LABORATORY IFIC.</u> 2 and 1254 were identified in these samples. The reported Aroclor was chosen based on the best pattern match and fit. Quantitation was performed using congeners common to both Aroclors to give the best overall total PCB concentration.
- 12. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels/

Deputy Laboratory Manager

Lionville Laboratory Incorporated

pef\r:\group\data\pest\04L\_576.pcb



# GLOSSARY OF PESTICIDE/PCB DATA

# **DATA QUALIFIERS**

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

# **ABBREVIATIONS**

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



# GLOSSARY OF PESTICIDE/PCB DATA

- P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- **D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC/MS.

PCBs by GC

Report Date: 05/01/01 07:15 Client: TNU-HANFORD B01-063 Work Order: 11343606001 Page: 1 RFW Batch Number: 0104L576

	Cust ID:	B11TW	Ļ	B11TW1		B11TW1	L	PBLKXJ		PBLKXJ BS		
Sample	RFW#:	004	1	004 MS	;	004 MSD		01LE0468-M	31	01LE0468-M	в1	
Information	Matrix:	OIL		OIL		OIL		OIL		OIL		
	D.F.:	1.00		1.00		1.00		1.00	1.0	0		
	Units:	UG/I	KG	UG/F	Œ	UG/K	(G	UG/K	3	UG/K	Œ.	
Surrogate:	Tetrachloro-m-xylene	90	ક	85	<del>-</del>	78	8	112	*	102	*	
	Decachlorobiphenyl	81	왐	79	ક્ષ	77	ક	102	¥	95	*	
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Aroclor-1221		2000	U	2000	U	2000	U	2000	U	2000	Ü	
Aroclor-1232	2	1000	U	1000	U	1000	U	1000	U	1000	U	
Aroclor-1242		2600		3000		2800		1000	U	1000	Ū	
Aroclor-1248	3	1000	U	1000	U	1000	U	1000	U	1000	U	
Aroclor-1254		950	J	64	ક્ષ	59	ક્ષ	1000	Ū	86	*	
Aroclor-1260	)	1000	U	1000	U	1000	U	1000	U	1000	U	

Alge stile.

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

Lionville Labo		<b>I</b>	Custo	ody 7										Re	eqι	ies	t P	age_	<u> </u>	of	-			VI	
	_											A_	B	D		C	,	-	E	, — —	1	· · · · · ·	100	vari (no)	ATTOKY INC
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		Project Manag	er O					VOIGH		_[	Solid													$\bot$	
oc Spec		Del Std	TAT _	<u> 7</u> d	<u> </u>			Preser	vatives			_				_			<u> -</u>		<u> </u>				
Date Rec'd 4-2001 Date Due 42701						ANALY			<b>-</b>	ORGANIC V AN ASSOCIA		PCB 4	ē ē				Metal	ORG Z							
Dake Hec d	<u>-</u>	T	Date Due		1.5.1		=		Τ			<u> </u>		<u> </u>	] <u> </u>	<u> </u>	Lionvi	lle I a	<u> </u>	<u> </u>	L Only	<u> </u>	1		L
MATRIX CODES: S - Soll SE - Sediment SO - Solid	Lab ID	C	llent ID/Desc	ription		Mat Cho:	C sen ')	Matrix	Dete Collec	ted Coll	lme lected	エたらか	HC5300	OPCB		せられ	,		De Su						
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O- Oil A- Air	$\infty$	V						<u> </u>	17/20		131 125	•							<del>                                     </del>				<del>}</del>	-+-	<del> </del>
DS - Drum Solids	003	1-1-1-	<del></del>				-	_	1 1		110	<i></i>	_		_										
DL - Drum Liquids	CCH	1 4						1	1		20														<del> </del>
L - EP/TCLP Leachate WI - Wipe		<u> </u>	- <u></u>					-	1					_							<del> </del>		_	_	
X - Other F - Fish									1										<del>                                     </del>					_	_
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Bechtel Hanfor	rd Inc.	CH	IAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	SF	<b>EQUEST</b>	r _	B	01-063-4	Page 1	of <u>I</u>
Collector THOMAS GS		Compa LER	ny Contact CH JA	Telephor 509-3	ne No. 73-5904				roject Coordi RENT, SJ	P	rice Code	3D		rnaround
Project Designation 600-23 Anomalous Waste Ch	naracterization - Other Li		ng Location 23 DIG SITE						AF No. 01-063	Λ	ir Qualit	א נין	70	lays 10
Ice Chest No. BHI-	94 zo	Field L	ogbook No. 518	1	RUGO:	130E	<u>60</u>	*	lethod of Ship FED EX	ment				
Shipped T TMARECRA		Offsite	Property No. A	0102	25Ø		1		Sill of Lading/	35	795	4	:38	508
POSSIBL <del>E S</del> AMPLE HAZA	RDS/REMARKS		Preservation	Cool 4C	None ZTU	B Cool 4C								
			Type of Container	Gs*	AG	aG								 
			No. of Container(s)	1	1	,								
Special Handling and/or Sto	rage		Volume	40mL	120mL	1000ml.			1				1	!
	SAMPLE ANAL	YSIS		VQA - \$260A (TCL)	pH (Soil) - 9045	Semi-VOA - B270A (TCL)				Treat	/ _			
Sample No.	Matrix *	Sample Date	Sample Time	786	· 计数据数:图	redefig			1 : 1 : .	11 600	170	Apr. 1	iski, gër	
B11TV8	OTHER LIQUID	4/16/01	0867	X	×	X				3117	0			
B11TV9	OTHER LIQUID	1/14/01		×	×	×				BITT	41			
B11TW0	OTHER LIQUID	4/6/01	0910	×	×	×				8117	12			
											<b></b>			·
CHAIN OF POSSESSIO				1		<u> </u>				<u> </u>	<u></u>			<u> </u>
Relinquished By  Gray Thomas Street on  Relinquished By Republic  1 7 13 31	Date/Time /33 c	Received By  Received By	1 28 4/10 (RThere?) (A) Do	4/8/s/o  steffine 05  steffine 06  steffine  steffine  steffine  steffine	30	Snip Colle	ples st ping F	tor Fac	ed in Ref.# dility on 4 available to	/ <u>1   1   1  </u> relinguish pment.	samples	[		Matrix *  S. Sull M. Sediment Sca Solid S. Shudge W. Water G. Chil A. Ast Drawn Expuds H. Ussun M. Waper L. Lepand V. Cyclotion V. Other
				Ti					······································		٠١١١	9(0	ate/lime	
LABORATORY Received By SECTION	<b>,</b>			"	iic				_				ac faic	
FINAL SAMPLE Disposal M DISPOSITION	ethod					Dispo	sed By					1:	Date/Lime	

Collecter San	Ollectras GS Company Contact LERCH JA			t etepnus 509-37	18 ivu. 73-5904			TRÉNT, SJ		יוט איינע איינע						
Project Designation 600-23 Anomalous Waste Characterization - Other Liquid Sampling Location 600-23 DIG SITE					SAF No. B01-063							7day	15			
Ice Chest No. BHI	Logbook No. 1518		COA R600232E	00		Method of Shi FED EX	pment				6					
Shipped To TMA/RECRA	<del>11</del>	Offsite	Property No.	ty10	250	<b>3</b>		Bill of Lading	Ais Bill M	7951	+					
POSSIBLE SAMPLE HAZA	ARDS/REMARKS	•	Preservation	Nume	None Pr 41/81	Cool 4C			Page 2 of	pinally sent to represents	custody tra	ansfer to R	ysis. CF			
			Type of Container	P	0	aG			labeled for	was picked ( off-site analy	sis. A new	COC was				
} 			No. of Container(s)	1		l Luckey			Page <u>↓</u> of	or appropria Z represen	is custody i	ransfer to	RT			
Special Handling and/or Sto	rage		Volume	120mL	DOD MI	1000mL			offsite labor	ratory for dir	ected analy	Sís.	4114101			
	SAMPLE ANAL	YSIS	·	phi (Soil) - 9045	See item (1) in Special Instructions	PCBs - 8082							1			
										Tred To						
Sample No.	Matrix *	Sample Date	Sample Time		<b>网络</b>	<b>的第</b> 步 13	3.51.		and of D		10.754	, <b>.</b>	W 350 74			
B11TW1	OTHER LIQUID	4/14/01	1220	X	X	X				BILTY	3					
911IW2	OTHER LIQUID	ST Alla lo	<b></b>	<del> </del>					<b></b>	<del></del>		┼	_			
				<del> </del>		<b> </b> -			<del> </del>	<del></del>	<del> </del>	╂───	-₩			
				<del> </del>	}	<del> </del>			<del> </del>	<del> </del>	<del>                                     </del>	<del>                                     </del>	<del></del>			
CHAIN OF POSSESSIO		Sign/Prin	Names AT	4/16/01	SPEC	CIAL INSTR	UCTIO	INS	<del></del>	<del></del>	<del></del>	<u></u>	Natrix *			
Relinquished By  Ares /hornes /hus  Relinquished By  Rethrequished By  Rethrequished By  Rethrequished By	Date/Time  Proposed 4/10/01  Date/Time of Compate/Time of Comp	Received By	RThoras	ate/Time (5)	Merc	CP Metals - 601 ury <i>-</i> 7470 - (C		L); ICP Metals - 60	)10A (Add-on)	) (Arsenic, Lead	1, Selenium, T	hallium) ;	S Soll SI Sediment SI Solid S Sludge W - Water O Dill A Ale			
Relinquished By  Date/Time  Received By  TECES 4:0001 OSC Throppel 4:000				ale/Time	Collector not available to relinquish samples								DS Drum Solide DI 'Drum E innide T Tistue WF Wipe E i innid V Vegetation N Other			
Retinquished By	Date/Time	Received By	Da	ate/Time	-	<u>-</u>				411616	Je-	1				
LABORATORY   Received B	у	<u> </u>		Titl	le	· — -					1	∂ate/lime				
FINAL SAMPLE Disposal M DISPOSITION	ethod					Dispos	sed By			<del></del>	<del></del> -	Date/Lime				

# Figure 1. Sample Check-in List

Date/Time Received: 420-01 0920	<del></del>
SDG#: 01041576	· <del></del>
Work Order Number:	SAF# B01-065
Shipping Container ID: BHI-9H	Chain of Custody # Balance 3-4,5
1. Custody Seals on shipping container intact?	Yes [] No []
2. Custody Seals dated and signed?	Yes [] No []
3. Chain-of-Custody record present?	Yes [] No []
4. Cooler temperature (c.	100
5. Vermiculite/packing materials is	Wet [] Dry []
6. Number of samples in shipping container:	75
7. Sample holding times exceeded?	Yes [] No []
8. Samples have:	_hazard labels _appropriate sample labels
9. Samples are:in good conditionbroken	leaking have air bubbles
<ul><li>10. Were any anomalies identified in sample 1</li><li>11. Description of anomalies (include sample</li></ul>	
Sample Custodian/Laboratory: Theppe	/ LULT Date: 4-20-0   On By

# Lionville Laboratory, Inc. BNA ANALYTICAL DATA PACKAGE FOR TNUHANFORD B01-063 H1323

DATE RECEIVED: 04/20/01 LVL LOT # :0104L576

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11TV8	001	W	01LE0472	04/16/01	04/23/01	04/30/01
B11TV9	002	W	01LE0472	04/16/01	04/23/01	04/27/01
B11TW0	003	W	01LE0472	04/16/01	04/23/01	04/30/01
LAB QC:						
SBLKVL	MB1	W	01LE0472	N/A	04/23/01	04/27/01
SBLKVL	MB1 BS	W	01LE0472	N/A	04/23/01	04/27/01
SBLKVL	MB1 BSD	W	01LE0472	N/A	04/23/01	04/27/01





Client: TNU-HANFORD B01-063

**RFW #:** 0104L576

**SDG/SAF #:** H1323/B01-063

W.O. #: 11343-606-001-9999-00

**Date Received:** 04-20-2001

### **SEMIVOLATILE**

Three (3) water samples were collected on 04-16-2001.

The samples and their associated QC samples were extracted on 04-23-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-27,30-2001.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
- 2. The samples were extracted and analyzed within required holding times.
- 3. Non-target compounds were detected in the samples.
- 4. All samples required 800 to 50,000-fold dilution due to high levels of non-target compounds. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 5. All surrogate recoveries were within EPA QC limits.
- 6. All blank spike recoveries were within EPA QC limits.
- 7. Internal standard area criteria were not met for sample B11TV9. The GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly and all surrogate recoveries were within QC limits; consequently, the sample was not reanalyzed.
- 8. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."
- 9. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor

President

Date

02

Lionville Laboratory Incorporated

som\gorup\data\bna\tnu-hanford-0104-576.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 4 pages.

	Diville Labora	tory Sample	Discrepancy F	Report (SDR) <sub>SDR</sub> ;	#: GIEXOSE
Initiato Date: Client:	OF: MEEDHANE 425/01 : TNU	Batch: Samples: Method:	0104674 1, <b>Z_3</b> SW846/MCAWW/CLP/	Matrix:	01LE
a. COC b. Ger Mii Ho Im Note*: c. Pro	neral Discrepancy issing Sample/Extract old Time Exceeded aproper Bottle Type Verified by [Log-In] or [Prepoblem (Include all relevance)  O M F.V.	Insufficient S Not Amenable Property (circle)signature vant specific results:  # 2_ # 1 3 ses(s)	Wrong Test Code  Broken \ Sample I	e Other Other Wrong Sample Pulled Preservation Wrong	
	e-log Entire Batch Following Samples: e-leach e-extract e-digest evise EDD hange Test Code to lace On/Take Off Hold ect Manager Instruct concur with Proposed Disagree with Proposed Client Contacted: Date/Person Add Cancel	d (circle)  itionssignature/date: Action ad Action; See Instrue	700-	Russ 425/0	
Ve   X In   Ha   Ei	al Actionsignature/date 'erified re-[log][leach][e ncluded in Case Narrat lard Copy COC Revised lectronic COC Revised DD Corrections Comp Final Action has bee Distribution of Comp		ysis] (circle) nes required s. Fine delu	ther Explanation:  d add tunal du  tun 800 fold  poted in 1  ecialist for distribution ar	lutens prior to to 50 000 fold narrature

#### **GLOSSARY OF BNA DATA**

#### **DATA QUALIFIERS**

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I = Interference.
- NQ = Result qualitatively confirmed but not able to quantify.
- A = Indicates that a TIC is a suspected aldol-condensation product.
- N Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

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# **GLOSSARY OF BNA DATA**

### **ABBREVIATIONS**

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions
		and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.

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# Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 05/08/01 12:05 Client: TNUHANFORD B01-063 H1323 Work Order: 11343606001 Page: la RFW Batch Number: 0104L576

	Cust ID:	Blitv	3	B11TV9		B11TW0	)	SBLKVL		SBLKVL BS		SBLKVL BSI	D	
Sample	RFW#:	00:	Ĺ	002		003 WATER	;	01LE0472-M	в1	01LE0472-N	<b>в</b> 1	01LE0472-1	MB1	
Information		WATER			WATER		_	WATER	_	WATER		WATER		
	D.F.:	120		5000		80		1.0		1.0	-	1.0		
	Units:	UG/1	<u>.</u>	UG/L		UG/L	1	UG/L	l	UG/I	1	UG/I	Ĺ	
	Nitrobenzene-d5	D	8	D	8	D	ક	74	왕	69	*	78	8	
Surrogate	2-Fluorobiphenyl	D	8	D	૪	D	8	67	ક	59	ક્ષ	68	*	
Recovery	Terphenyl-d14	D	*	D	૪	D	૪	106	왐	90	ક	95	ક	
	Phenol-d5	D	8	D	ક	D	8	59	¥	63	¥	71	*	
	2-Fluorophenol	D	ક	D	४	D	४	63	ક્ષ	60	ક	66	ક	
	2,4,6-Tribromophenol	D	ક	- D	ક	D	૪	65	ક	59	ક	80	ક	
_	=======================================									=======================================				
Phenol		12000	U	510000	Ū	8200	U	10	U	62	8	69	ક	
	oethyl)ether	12000	U	510000	U	8200	U	10	Ŭ	10	U	10	Ū	
2-Chlorophe	nol	12000	Ŭ	510000	U	8200	U	10	U	63	*	70	<b>%</b>	
1,3-Dichlor	obenzene	12000	U	510000	Ū	8200	Ū	10	Ü	10	U	10	Ü	
1,4-Dichlor	obenzene	12000	U	510000	Ü	8200	U	10	U	48	8	55	¥ 	
1,2-Dichlor	obenzene	12000	U	510000	U	8200	U	10	U	10	U	10	Ŭ	
2-Methylphe	nol	12000	U	510000	U	8200	Ū	10	ט	10	U	10	U	
2,2'-oxybis	(1-Chloropropane)	12000	U	510000	U	8200	U	10	U	10	U	10	Ŭ	
4-Methylpher	nol	12000	Ü	510000	U	8200	U	10	U	10	Ū	10	U	
	i-n-propylamine	12000	U	510000	U	8200	U	10	U	68	8	85	<b>%</b>	
Hexachioroe	thane	12000	U	510000	U	8200	U	10	U	10	U	10	Ü	
	e	12000	U	510000	Ū	8200	U	10	U	10	U	10	Ü	
Isophorone_	7	12000	Ü	510000	Ü	8200	U	10	U	10	U	10	Ü	
2-Nitropheno		12000	ש	510000	Ŭ	8200	U	10	Ü	10	U	10	U	
2,4-Dimetny	lphenol	12000	U	510000	Ü	8200	Ü	10	Ū	10	Ū	10	Ü	
bis (2-chlore	oethoxy) methane	12000	U	510000	U	8200	Ü	10	U	10	Ū	10	U	
2,4-D1CD10F0	ophenol	12000	U	510000	Ü	8200	U	10	U	10	Ū	10	U	
	lorobenzene	12000	U	510000	Ū	8200	Ū	10	U	54	*	63	8	
Naphthalene		12000	U	510000	U	8200	Ü	10	U	10	Ū	10	Ū	
4-Chloroani		12000	U	510000	Ū	8200	Ū	10	U	10	U	10	U	
Hexachiorobi	utadiene	12000	Ū	510000	Ŭ	8200	Ū	10	Ū	10	Ū	10	Ū	
4-Chioro-3-r	methylphenol	12000	U	510000	U	8200	U	10	U	67	8	79	*	
	hthalene	12000	U	510000	U	8200	U	10	U	10	U	10	U	
	yclopentadiene	12000	U		Ü	8200	Ū	10	Ū	10	U	10	U	
	lorophenol	12000	U		U	8200	Ū	10	U	10	Ü	10	U	
2,4,5-Trich	of EPA CLP OC limits	31000	U	1300000	Ű	20000	U	25	U	25	Ü	25	Ü	

<sup>\*=</sup> Outside of EPA CLP QC limits.

RFW Batch Number: 0104L576	Client: T	NUHANFORD B01	<u>-06</u>	63 H1323	Wor	k Order: 11	<u>343</u>	606001		Page: 1b		
Cust ID:	B11TV8	B11TV9	ı	B11TW0		SBLKVL		SBLKVL BS		SBLKVL BSI	D	
RFW#:	001	002		003		01LE0472-M	в1	01LE0472-MB	1	01LE0472-B		
2-Chloronaphthalene	12000	U 510000	U	8200	U	10	Ū	10	U	10	บ	
2-Nitroaniline	31000	U 1300000	U	20000	U	25	U	25	U	25	U	
2-Nitroaniline	12000	U 510000	U	8200	U	10	U	10	U	10	υ	
Acenaphthylene	12000	U 510000	Ū	8200	U	10	Ū	10	Ū	10	U	
2,6-Dinitrotoluene	12000	ບ 510000	Ū	8200	U	10	U	10	Ü	10	U	
3-Nitroaniline	31000	U 1300000	U	20000	U	25	U	25	U	25	U	
Acenaphthene	12000	U 510000	U	8200	Ű	10	U	56	ક	62	ક	
2,4-Dinitrophenol	31000	U 1300000	U	20000	U	25	U	25	U	25	U	
4-Nitrophenol	31000	U 1300000	U	20000	Ū	25	U	48	&	69	웋	
Dibenzofuran	12000	U 510000		8200	U	10	U		U	10		
2,4-Dinitrotoluene	12000	U 510000	U	8200	U	10	U	60	ł	78	¥	
Diethylphthalate	12000	U 510000	U	8200	U	10	Ü	10	Ū	10	Ū	
4-Chlorophenyl-phenylether	12000	U 510000	U	8200	U	10	U	10 1	U	10	U	
Fluorene		U 510000	U	8200	U	10	U	10	U	10		
4-Nitroaniline	31000 1	U 1300000	U	20000	U	25	U	25 1	Ū	25	U	
4,6-Dinitro-2-methylphenol		U 1300000	U	20000	U	25	U	25 1	U	25	υ	
N-Nitrosodiphenylamine (1)	12000	U 510000	U	8200	U	10	U	10	U	10	บ	
4-Bromophenyl-phenylether	12000	U 510000	U	8200	U	10	U	10 1	IJ	10	U	
Hexachlorobenzene	12000	U 510000	U	8200	U	10	U	10 (	IJ	10	U	
Pentachlorophenol	31000	U 1300000	U	20000	U	25	U	37	ŧ	67	ક્ર	
Phenanthrene	12000 (	U 510000	U	8200	U	10	U	10 (	J	10	U	
Anthracene	12000 (	U 510000	U	8200	U	10	U	10 1	IJ	10	U	
Carbazole	12000 (	U 510000	U	8200	U	10	บ	10 1	IJ	10	U	
Di-n-butylphthalate	12000 t	J 510000	U	8200	U	1	J	10 t	J	0.8	J	
Fluoranthene	12000 (	U 510000	Ū	8200	U	10	U	10 (	J	10	ប	
Pyrene	12000 t	U 510000	U	8200	U	10	U	80	k	83	ક	
Butylbenzylphthalate	12000 t	J 510000	U	8200	U	10	Ų	10 T	J	10	U	
3,3'-Dichlorobenzidine	12000 t	J 510000	U	8200	U	10	U	10 T	J	10	U	
Benzo(a)anthracene	12000 (	J 510000	U	8200	U	10	U	10 t	J	10	U	
Chrysene	12000 t	J 510000	U	8200	U	10	U	10 t	J	10	U	
bis(2-Ethylhexyl)phthalate	12000 T	J 510000	U	8200	U	1	J	0.7	JΒ	0.7	J	
Di-n-octyl phthalate	12000 (	J 510000	U	8200	U	10	U	10 t	J	10	U	
Benzo(b)fluoranthene	12000 t	J 510000	U	8200	U	10	U	10 t	J	10	U	
Benzo(k)fluoranthene	12000 t	510000	U	8200	U	10	U	10 t	J	10	U	
Benzo(a)pyrene	12000 (	510000	U	8200	U	10	U	10 t	J	10	U	
Indeno(1,2,3-cd)pyrene	12000 t	510000	U	8200	U	10	U	10 τ	J	10	U	
Dibenz (a,h) anthracene	12000 t	J 510000	U	8200	U	10	Ų	10 t	J	10	U	
Benzo(g,h,i)perylene	12000 t	J 510000	U	8200	U	10	U	10 t	J	10	U	
(1) - Cannot be separated from Diph	nenylamine.	*= Outside	of			its.						

### SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

| |B11TV8 |

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix: (soil/water) WATER Lab Sample ID: 0104L576-001

Sample wt/vol: 980 (g/mL) ML Lab File ID:  $\underline{A043017}$ 

Level: (low/med) LOW Date Received: 04/20/01

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_ Date Extracted: 04/23/01

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/30/01

Injection Volume: 2.0(uL) Dilution Factor: 1200

GPC Cleanup: (Y/N) M pH: 7.0

Number TICs found: 11 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=======================================		****		
1.	ALKANE	22.34	4000	J
2.	ALKANE	22.79	4000	J
3.	ALKANE	23.31	6000	J
4.	ALKANE	23.89	8000	J
5.	ALKANE	24.58	8000	J
6.	ALKANE	25.39	10000	J
7.	ALKANE	26.35	10000	J
8.	ALKANE	27.51	10000	J
9.	ALKANE	28.89	10000	J
10.	ALKANE	30.56	10000	J
11.	ALKANE	32.57	10000	J
į.	1	1	l	

3/90

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

-	B11TV9	
	ł	

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix: (soil/water) WATER Lab Sample ID: 0104L576-002

Sample wt/vol: 980 (g/mL) ML Lab File ID:  $\underline{A042718}$ 

Level: (low/med) LOW Date Received: 04/20/01

% Moisture: \_\_\_\_\_ decanted: (Y/N)\_\_ Date Extracted: 04/23/01

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/27/01

Injection Volume: 2.0(uL) Dilution Factor: 50000

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:
Number TICs found: 14 (ug/L or ug/Kg) UG/L

COMPOUND NAME | RT | EST. CONC. | Q CAS NUMBER 21.42 ALKANE 100000| J 21.90 ALKANE 200000 J 2. 300000 J 3. ALKANE 22.34 4. ALKANE 22.80 200000 J 23.00 5. UNKNOWN 100000 J 300000| J ALKANE 23.31 6. 23.54 100000 J 7. UNKNOWN 8. 23.90 300000 J ALKANE 3000001 J 24.58 9. ALKANE 300000| J 25.40 10. ALKANE 26.37 300000 J 11. ALKANE 27.52 12. ALKANE 200000 J 300000| J 13. ALKANE 28.90 ALKANE | 32.58 | 2000001 J 14.

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

]	
B11TW0	
1	

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix: (soil/water) WATER Lab Sample ID: 0104L576-003

Sample wt/vol: 980 (g/mL) ML Lab File ID:  $\underline{A043018}$ 

Level: (low/med) LOW Date Received: 04/20/01

% Moisture: \_\_\_\_ decanted: (Y/N) \_\_ Date Extracted: 04/23/01

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/30/01

Injection Volume: 2.0(uL) Dilution Factor: 800

GPC Cleanup: (Y/N) N pH: \_\_7.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN UNKNOWN	20.27	3000 4000	J J
3.	UNKNOWN	23.16 	3000	J

1F

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKVL		

Client: TNUHANFORD B01-063 H1323

Matrix: (soil/water) WATER Lab Sample ID: 01LE0472-MB1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A042713

Level: (low/med) LOW Date Received: <u>04/23/01</u>

% Moisture: \_\_\_\_\_ decanted: (Y/N)\_\_\_ Date Extracted: 04/23/01

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/27/01

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: \_\_7.0

CONCENTRATION UNITS: Number TICs found: \_0 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				   

Lionville Labor	atory	Use C	Only (	Custo	dy T	rans	sfer	F	}ec	ord/l	_ab ˈ	Wd	ork	Re	equ	les	t Pa	ige _	<u>1</u> o	1_1			5	\/	ľ	Ï
01041		76			_					ONLY S				$\sigma$		c			E				Har	V .	B17 <b>k X</b> (1	50 IN
Client	7	<u>. u</u>	ansc	vd (	201-0	V 12		Т	Refrige	rator #	1 10 th	31		3		3			3							
Est. Final Pro	. Sen	npling i	Date					_	#/Type	Container	Liquid Solid	+	in.	ın.		IRC:			17				_			-
Project #			Cocto-	·CC)1-9	999-	<u> </u>		_	Volume	<del></del>	Liquid	40	15	ال		150			500				$\Rightarrow$			
Lionville Labo			ct Manag	<u> </u>				_ .	10000		Solid		<u> </u>		<u> </u>											┼
OC STOCK DOLL STOCK TAT 7 CC4							Preser	vatives		<u> </u> _		ANIC					INC	) PRG	-		$-\!\!+$			╀─		
Date Rec'd	4	-20	01_	Date Due .	식간	101		_	ANALY		-	δ Š		PCB V	F Đ				Metal	ਨ				1111		
		T		·			Matrix	_					1	!	1		Lionvii	le La	borate	ory Us	e Only		1	1111		<u>-</u>
MATRIX CODES: S - Soil SE - Sediment SO - Soild	Lab ID		ÇI	lient IC/Descr	iption		Chose (V)	n	Metrix	Date Collected	Time Collected	THON	OCCOH	opc3		せんみ			(Jyw							
SL - Sludge W - Water	~	2	SYTI					30	0	4-4-67	Office	ľ		Ť	<del>                                     </del>									_		一
O - Oil A - Air		7	1 /0			<del>-</del>		寸	<u>.                                     </u>	1100	083	1-												Till		一
DS - Drum Solids	$\alpha$		W	•				十	十一	<del>                                     </del>	V810	T												"		
DL - Drum Liquide	2		1 4	=				┪		1	1950			/					/				<u> </u>	11,11		Γ
L - EP/TCLP Leachale WI - Wipe		`		<del></del>				T																		
X - Other F - Fish																								1111		
L. Lin																					<u> </u>					
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Special Instructi	ons:	5	25 C	201-06	3ء				EVISION	ns: 1. <u>A</u> 1.Ac	. D. 9	L 1		a c	~ C ·	- C.	. Er	K			Lionvill	e Lebors	itory U	ee Onl	y	
Run Y										2.D.G., ~ 3. ~ , ~ 4 5	W.	Na							1) Ha Aii (12) 2) 3) Ca 4)	end Deli bill # (5557) Ambier Becera indition Sample	d wered	380)	1) Pro Packa 2) Un Packa 3) Pre 4) Un	escuty	on Out Dor Dor Dor Dor San Clor	ler N Duler N ople
Relinquished by			eived by	Date	Time	Reli	nquishe by	d		Received by		ate	Tin	Samples Labels and				5)	Receive	reserve (Y) or ed With	N in		Berne Sanga e		1	
Freex	<u> </u>	Iba	<del>20</del> 21	10:05:14	OSPO	CON	IPOS	TP	<b> </b>		RIGI	NAI					ar i Of	COC Record? Y or (N ) NOTES:					Coole Temp		. 1	r)

4235 7954 3808

Bechtel Hanfor	d Inc.	CI	IAIN OF CUST	ODY/S	AMPLE	ANALY	SIS	RE	QUEST	·	BO	01-063-4	Page 1	<u>ા</u> બાં
Collector THOMAS GS		Compa	nny Contact CH JA	Telephor				Proje TRE	ect Coordis NT, SJ	alor	ice Code	3P		naround 4
Project Designation 600-23 Anomalous Waste Chi	racterization - Other Liq		ing Location 23 DIG SITE					SAF B01-		Ai	r Quality	<b>/</b> []	70	mys
Ice Chest No. BHI-94 ZOFZ Field Logbook P					RGGO:	132E#	Ø	FE	od of Ship D EX					
Shipped T TMARECRA		Offsite	Property No.	010	25Ø	l	-	Bill	Lading/	35	195	4	<sup>1</sup> 38	58
POSSIBL <del>E S</del> AMPLE HAZA	RDS/REMARKS		Preservation	Cool+C	C None ZT-1	B Cool 40 Miest								
			Type of Container	Gs*	AG	аG							,	<u> </u>
			No. of Container(s)	1	1	i								
Special Handling and/or Stor	age	i	Volume	40mL	120mL	1000ml.							1 <sup>1</sup>	
	SAMPLE ANALY	/sis		VOA - 8260A (TCL)	pH (Soil) - 9045	Semi-VOA - \$270A (TCL)				<del></del>				
,										Treat	to			
Sample No.	Matrix *	Sample Date	Sample Time	( <b>35</b> , <b>9</b> .)	11.45	100			5 a 6 .	April 1		<b>बैंग्डि</b> ं	- 책. 그	
B11TV8	OTHER LIQUID	4/16/01	0867	χ	X	X				3/171	0		1	
B11TV9	OTHER LIQUID	1/14/01	0825	X	X	×				BITT	11			
B11TW0	OTHER LIQUID	4/16/01	0910	_×	×	×				8117	12			
				<u> </u>	-									
CHAIN OF POSSESSIO	N	Sign/Prin		4/0/2/0	SPEC	CIAL INSTR	UCTE	ONS						Matrix *
レー・レラス マツ	Date/Time /530	Store In A	RT1628 4/10	ate/Time 15.	13C								<i>t</i> ;	S Solt SI Sediment SI Sediment SI Solid S Sludge W Water O Od A Air
Relinquished By Date/Time Received By D  TC EX 4:20:01 C920 Throad 4:20				Col CSI	20	Samples stored in Ref.# 213 at the 3728 Shipping Facility on 4 /16/19 Collector not available to relinquish samples on 4/16/19 for shipment.					115 From Solids 124 Drom Expode 1 Issue W. Wipe 1 Expode N. Vegetation N. Ober			
Relinquished By	Date/Time	Received By	D	ate/Time							411	9(a		
LABORATORY Received By SECTION	,			τ	itle							I.	ate/Time	
FINAL SAMPLE Disposal M. DISPOSITION	ethod	<u> </u>				Dispos	ied By					ı	Date/ Lime	

Colleginas GS	3,1		any Contact RCH JA	s esc <sub>P</sub> non 509-37	73-5904		TRÊNT,	SJ	1 tire com	<i></i> _			_
Project Designation 600-23 Anomalous Waste	: Characterization - Other L		ling Location 0-23 DIG SITE				SAF No. B01-063		Air Quality	<u>/ []</u>	7dx	1 y S	7
Ice Chest No. BH	011/-	(   Field	Logbook No. -1518		COA R600232E	00	Method ( FED E	of Shipment X					
Shipped To TMA/RECRA		Offsite	te Property No.	1010	250	<b>3</b>	Bill of L	ading/Aic Bill	37951		1		
POSSIBLE SAMPLE HA	ZARDS/REMARKS		Preservation	None	Rr 41/Ale	D Cool 4C		Page 2	originally sent to	s custody t	iransfer to	RCF.	
			Type of Container	Р	5	аG		The sam	ipie was picked ( for off-site analy	up from R ysis. A nev	CF and re	't- A5	
		1	No. of Container(s)			11357-301		_ Page L	ed for appropria _of _Z_ represen	nts custody	transfer	10	RT
Special Handling and/or S	Horage	l	Volume	120mL	500 mi	1000ml.		offsile is	boratory for dir	rected san	lysis.	11	19/01
	SAMPLE ANAL	LYSIS		pH (Soil) - 9045	See item (1) in Special Instructions	PCB4 - 8082						,1	
									Tred To		_		
Sample No.	Matrix •	Sample Date		<b>建</b> 车 磅	· 斯特) [8]	"懂?"	dia tra			1687	A SERVE	Ţî.	<b>第</b> 2 多
B11TW1	OTHER LIQUID	4/14/01	/220	X	LX.	X_			BIJTY	<u>≯</u>	<del></del>	$-\!$	
B11TW2	OTHER LIQUID	St Aliato	*	<del> </del>	<del> </del>					<del> </del>	<del></del>	-	
				<del> </del>	<del> </del>	<del>  -</del>				┼			
		<b> </b>		<del>                                     </del>	<del> </del>	<del>  -</del>			<del></del>	<del>                                     </del>	+	<del></del>	<del></del> -
CHAIN OF POSSESS	sion	Sign/Prin	Names 15	4/26/01	SPEC	IAL INSTRUC	TIONS			<del></del>		M	latrix *
Relinquished By	Date/Time / 3	-Gured in	Da Ulula	ate/Time 15				als - 6010A (Add	I-on) (Arsenic, Lead	d, Sclenium,	, Thallium):		Sedimen
Reinfriched By Lorn eve	Comes 4/6/01	() Received By	R Thoras	ate/Time (2)	Mercu	ary - 7470 - (CV)						19.5	Solid Studge
Rethrouished By DT	JSX Allera	Received By	<u> </u>	1119 Oc								1100	
14.11	41910	, rel	1916		}	Semples !	stored in Ref	u 2Batth	ie 3728			10S 108.	Drum Soleic Orum Liquids
Relinquished By  FCOE  4.	Date/Time	Received By		ate/Time		Shipping	Facility on	4 /\ <u>L/</u> QI	<b>_</b> •			[ W I -	lissec Wipc .iquid
				ate/Time	<del> </del>	Collector	not available	shipment	in samples	41141	61	\ \ \ \ \	Vegetation Micr
Relinquished By	Date/Time	Received By	Da	ale/Time					411616	+15-1-	•		
LABORATORY Received SECTION	i By		<del></del>	Tiel	de			<del></del>			Date/Time	<del></del>	
FINAL SAMPLE Disposal DISPOSITION	l Method					Disposed	Ву				Date/Lime	:	

# Lionville Laboratory, Inc. VOA ANALYTICAL DATA PACKAGE FOR TNU-HANFORD B01-063

DATE RECEIVED: 04/20/01 LVL LOT # :0104L576

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B11TV8	001		01LVH140	04/16/01	N/A	04/24/01
B11TV8	001 MS	W	01LVH142	04/16/01	N/A	04/25/01
B11TV8	001 MSD	W	01LVH142	04/16/01	N/A	04/25/01
B11TV9	002	W	01LVH140	04/16/01	N/A	04/24/01
B11TW0	003	W	01LVH140	04/16/01	n/a	04/24/01
LAB QC:						
VBLKVM	MB1	W	01LVH140	N/A	N/A	04/24/01
VBLKVN	MB1	M	01LVH142	N/A	N/A	04/25/01
VBLKVN	MB1 BS	W	01LVH142	N/A	N/A	04/25/01





Client: TNU-HANFORD B01-063

**RFW #:** 0104L576

**SDG/SAF #:** H1323/B01-063

W.O. #: 11343-606-001-9999-00 Date Received: 04-20-2001

# **GC/MS VOLATILE**

Three (3) water samples were collected on 04-16-2001.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 04-24,25-2001.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

- 1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
- 2. Samples were analyzed within required holding time.
- 3. Non-target compounds were detected in the method blank.
- 4. All samples required 100 to 200-fold dilution due to the nature of the sample matrix.
- 5. One (1) of twenty-four (24) surrogate recoveries was outside EPA QC limits. The analysis of associated matrix spike samples fulfills the reanalysis requirement of sample B11TV8.
- 6. All matrix spike recoveries were within EPA QC limits.
- 7. All blank spike recoveries were within EPA QC limits.
- 8. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than the CRQL.
- 9. Internal standard area and retention time criteria were met.
- 10. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."
- 11. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor

President

Lionville Laboratory Incorporated

som\group\data\voa\tnu-hanford-0104-576.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 7 pages.

02

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #:
Initiator: Decision Batch: Classic Parameter: Carlos Date: Upstol Samples: 1-3 Matrix: Consecutive Method: Sw846/MCAWW/CLP/ Prep Batch:
1. Reason for SDR a. COC Discrepancy _ Tech Profile Error _ Client Request _ Sampler Error on C-O-C _ Transcription Error _ Wrong Test Code _ Other
3. Discussion and Proposed Action Other Description:  Re-log  Entire Batch  Following Samples:  Re-leach  Re-extract  Re-digest  Revise EDD  Change Test Code to  Place On/Take Off Hold (circle)  4. Project Manager Instructionssignature/date:
☐ Disagree with Proposed Action; See Instruction ☐ Include in Case Narrative ☐ Client Contacted: ☐ Date/Person Add ☐ Cancel
5. Final Actionsignature/date: Complete Compl
When Final Action has been recorded, forward original to QA Specialist for distribution and filing.  Route Distribution of Completed SDR  X Initiator  Route Distribution of Completed SDR  Metals: Beegle
X Lab General Manager: M. Taylor   Inorganic: Perrone   Inorganic: Perrone   Inorganic: Perrone   Inorganic: Perrone   GC/LC: Kiger   MS: Rychlak/Layman   MS: Rychlak/Layman   Log-in: Keppel   Admin: Soos   Sample Prep: Beegle/Kiger   Other:

### **GLOSSARY OF VOA DATA**

#### DATA QUALIFIERS

- U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TiCs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 31.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E = indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D = Identifies all compounds identified in an analysis at a secondary dilution factor.
- 1 = Interference.
- NO = Result qualitatively confirmed but not able to quantify.
- N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y = Additional qualifiers used as required are explained in the case narrative.

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# **GLOSSARY OF VOA DATA**

### **ABBREVIATIONS**

BS	*	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.

mmz\10-94\gloss.voa



# Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

RFW Batch Number: 0104L576 Client: TNUHANFORD B01-063 H1323 Work Order: 11343606001 Page: la

	Cust ID:	B11TV	3	B11TV8	}	B11TV8	3	B11TV	)	B11TW0	)	VBLKVM	
Sample Information	RFW#: Matrix: D.F.:	<b>001</b> WATER 100		WATER	<b>001 MS</b> WATER 100		001 MSD WATER 100		<b>002</b> WATER 200		0	01LVH140-1 WATER 1.4	
	Units:	UG/I	_	UG/I		UG/I		UG/I		UG/L	_	UG/I	
	Toluene-d8	35 *	· %	95	ૄ	93	%	96	%	91	%	93	*
Surrogate Br	omofluorobenzene	92	8	98	8	· 95	ક	82	8	95	8	96	8
-	ichloroethane-d4	103	% €1	88	% £1_	84	웅 f]	84	% _£1	83	% €1.	88	წ £ე
Chloromethane		1000	U U	1000	.=r.r=	1000	<u>U</u>	2000	.=LT=	1000	בוד: בודי	<b></b> 10	
Bromomethane		1000	U	1000	U	1000	U	2000	U	1000	U	10	U
Vinyl Chloride		1000	U	1000	U	1000	บ	2000	U	1000	U	10	Ū
Chloroethane_		1000	U	1000	U	1000	U	2000	U	1000	U	10	Ū
Methylene Chioria	.e	320	JВ	980	В	980	В	2000	В	340	JВ	3	J
Acetone		1000	U	1700		1400		14000		4800		10	U
Carbon Disulfide_		500	บ	500	U	500	U	1000	U	500	U	5	U
1,1-Dichloroethen	e	500	U	101	૪	100	*	1000	U	500	U	5	U
1,1-Dichloroethan	.e	500	Ū	500	U	500	U	1000	U	500	U	5	Ū
1,2-Dichloroethen	e (total)	500	U	500	U	500	Ū	1000	U	500	U	5	Ų
Chloroform		500	U	500	U	500	U	1000	U	500	U	5	U
1,2-Dichloroethan	.e	500	U	500	U	500	U	1000	U	500	U	5	U
2-Butanone		1000	U	1000	U	1000	U	2000	U	1000	U	10	U
1,1,1-Trichloroet	hane	500	U	500	U	500	Ü	1000	U	500	U	5	U
Carbon Tetrachlor	ide	500	U	500	U	500	Ū	1000	U	500	U	5	U
Bromodichlorometh	ane	500	U	500	U	500	บ	1000	U	500	U	5	U
1,2-Dichloropropa	ne	500	U	500	Ū	500	U	1000	U	500	U	5	Ü
cis-1,3-Dichlorop	ropene	500	U	500	U	500	U	1000	U	500	U	5	Ū
Trichloroethene		500	U	89	ક	89	왐	1000	U	500	U	5	U
Dibromochlorometh	ane	500	U	500	U	500	U	1000	U	500	U	5	Ū
1,1,2-Trichloroet	hane	500	U	500	Ü	500	U	1000	U	500	U	5	U
Benzene		500	U	101	૪	101	ક્ષ	1000	Ū	500	U	5	U
Trans-1,3-Dichlor	opropene	500	U	500	U	500	U	1000	U	500	Ű	5	U
Bromoform		500	ប	500	U	500	U	1000	U	500	U	5	U
4-Methyl-2-pentan	one	1000	U	1000	U	1000	U	2000	U	1000	U	10	U
		1000	U	1000	U	1000	U	2000	Ŭ	1000	U	10	Ū
Tetrachloroethene		500	U	500	U	500	U	1000	U	500	U	5	Ū
1,1,2,2-Tetrachlo		500	ប	500	U	500	U	1000	U	500	U	5	Ū
Toluene		500	U	109	४	110	*	1000	U	<b>50</b> 0	U	5	Ū
*= Outside of EPA	CLP OC limits												

<sup>\*=</sup> Outside of EPA CLP QC limits.



Report Date: 05/07/01 11:35

RFW Batch Number: 0104L	576 Clie	nt: <b>TNUHANFOR</b> I	В01-063 Н132	3 Work Order:	11343606001	Page: 1b	I
	Cust ID:	B11TV8	B11TV8	B11TV8	B11TV9	B11TW0	VBLKVM
	RFW#:	001	001 MS	001 MSD	002	003	01LVH140-MB1
Chlorobenzene		500 U	99 %	98 %	1000 U	500 U	5 U
Ethylbenzene		500 U	500 U	500 U	1000 U	500 U	5 U
Styrene		500 U	500 U	500 U	1000 U	500 Ŭ	5 Ü
Xylene (total)		500 U	500 U	500 U	210 J	500 U	5 U

<sup>\*=</sup> Outside of EPA CLP QC limits.

# Lionville Laboratory, Inc.

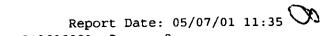
Volatiles by GC/MS, HSL List

RFW Batch Number: 0104L576 Client: TNUHANFORD B01-063 H1323 Work Order: 11343606001 Page: 2a

Cust ID:	VBLKVN		VBLKVN BS		·
Sample RFW#: Information Matrix: D.F.: Units:	WATER 1.0	O1LVH142-MB1 WATER 1.00 UG/L		<b>ß1</b>	
Toluene-d8	94	8	90	8	
Surrogate Bromofluorobenzene		9	94	8	
Recovery 1 2-Dichloroethane-d4	89	%	87	8	
Recovery 1,2-Dieniolocchane 41	###=========		.========	==f1	========fl======fl======fl======fl
Chloromethane		U			
Bromomethane		U	10	U	
Vinyl Chloride	10	U	10	U	
Chloroethane	10	U	10	U	
Methylene Chloride	1	J	12	В	
Acetone		U	10		
Carbon Disulfide	5	U	5	Ū	
1,1-Dichloroethene		U	96	왕	
1,1-Dichloroethane		U	5	U	
1,2-Dichloroethene (total)	5	U	5	U	
Chloroform	5	U	5	U	
1,2-Dichloroethane	5	U	5	U	
2-Butanone	10	U	10	U	
1,1,1-Trichloroethane	_ 5	U	5	U	
Carbon Tetrachloride	_ 5	U	5	U	
Bromodichloromethane	_ 5	U	5	U	
1,2-Dichloropropane	_ 5	U	5	U	
cis-1,3-Dichloropropene	5	U	5	U	
Trichloroethene		U	87	8	
Dibromochloromethane		U	5	U	
1,1,2-Trichloroethane	5	U	5	U	
Benzene		U	98	ક	
Trans-1,3-Dichloropropene	_ 5	U	5	U	
Bromoform	5	U	5	U	
4-Methyl-2-pentanone		U	10	U	
2-Hexanone	_ 10	U	10	U	
Tetrachloroethene		U	5	U	
1,1,2,2-Tetrachloroethane	_ 5	U	5	U	

105 %

5 U



<sup>\*=</sup> Outside of EPA CLP QC limits.

RFW Batch Number: 0104L576 Client: TNUHANFORD B01-063 H1323 Work Order: 11343606001 Page: 2b

Cust ID: VBLKVN

VBLKVN BS

RFW#: 01LVH142-MB1 01LVH142-MB1

Chlorobenzene	5	U	94	8
Ethylbenzene	5	U	5	U
Styrene	5	U	5	Ū
Xylene (total)	5	U	5	U
+ 0 +-13 -5 772 012 00 11 11-				

<sup>\*=</sup> Outside of EPA CLP QC limits.

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS CLIENT SAMPLE NO.

311TV8		

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix: WATER

Lab Sample ID: 0104L576-001

Sample wt/vol:  $\underline{5.00}$  (g/mL)  $\underline{\text{ML}}$  Lab File ID:  $\underline{\text{h042410}}$ 

Level: (low/med) LOW

Date Received: 04/20/01

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 04/24/01

Column: (pack/cap) CAP

Dilution Factor: 100

CONCENTRATION UNITS:

Number TICs found: 0

(ug/L or ug/Kg) <u>UG/L</u>

			· ·		
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
				=====	
1.					

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

	B11TV9
I	

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Matrix:

WATER

Lab Sample ID: <u>0104L576-002</u>

Sample wt/vol:  $5.00 \text{ (g/mL)} \underline{\text{ML}}$ 

Lab File ID: h042417

Client: TNUHANFORD B01-063 H1323

Level: (low/med) <u>LOW</u>

Date Received: 04/20/01

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 04/24/01

Column: (pack/cap) CAP\_

Dilution Factor: 200

CONCENTRATION UNITS:

Number TICs found: 0

(ug/L or ug/Kg) <u>UG/L</u>

CAS NUMBER	COMPOUND NAME	RT RT	EST. CONC.	Q
				=====
1.				

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS CLIENT SAMPLE NO.

B11TW0

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix: WATER

Lab Sample ID: <u>0104L576-003</u>

Sample wt/vol:

<u>5.00</u> (g/mL) <u>ML</u>

Lab File ID: h042412

Level: (low/med) LOW

Date Received: <u>04/20/01</u>

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 04/24/01

Column: (pack/cap) CAP

Dilution Factor: 100

CONCENTRATION UNITS:

Number TICs found: \_0

(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	l Q	
			=========	=====	
1.	1	j			
		l			

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

1	 
I .	
VBLKVM	
IVBLKVM	
!	

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix:

WATER

Lab Sample ID: 01LVH140-MB1

Sample wt/vol: <u>5.00</u> (g/mL) <u>ML</u> Lab File ID: <u>h042405</u>

Level: (low/med) <u>LOW</u>

Date Received: <u>04/24/01</u>

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 04/24/01

Column: (pack/cap) CAP

Dilution Factor: 1.00

CONCENTRATION UNITS:

Number TICs found: <u>0</u>

(ug/L or ug/Kg) <u>UG/L</u>

CAS	SNUMBER	COMPOUND NAME	RT	EST. CONC.	Q
====:					====
1.					
					l1

### VOLATILE ORGANICS ANALYSIS SHEET TENTATIVELY IDENTIFIED COMPOUNDS

	VBLKVN		
1			

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-063 H1323

Matrix:

<u>WATER</u>

Lab Sample ID: <u>01LVH142-MB1</u>

Sample wt/vol: 5.00 (g/mL)  $\underline{\text{ML}}$  Lab File ID:  $\underline{\text{h042508}}$ 

Level: (low/med) LOW

Date Received: 04/25/01

% Moisture: not dec. \_\_\_\_\_

Date Analyzed: 04/25/01

Column: (pack/cap) <u>CAP</u>

Dilution Factor: 1.00

CONCENTRATION UNITS:

Number TICs found: 2

(ug/L or ug/Kg) <u>UG/L</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		======	=========	====
1.	SILOXANE	22.142	30	J
2.	UNKNOWN	25.439	5	J
				l <u></u> 1

Lionville Labor			(A)	Custo	-					ord/i			EAS		equ	Jes -	<b>t</b> Pag		-	1_	Ĩ	D	V DON'S HE	<u> </u>	
					<del></del>				Betries	erator#	-(IL 10)(I	4	<u>か</u> ろ	<u>D</u>	Ţ	<u>C</u>	<del>,                                    </del>	٠ ٦ -	5	<del>-</del> T			Τ-	Т-	T -
Client				200	DC1-0	X o S	<u> </u>		Herry	erator »	Liquid	<del>  \4</del>	IR:	+=	-	JAC+	<del> </del>			+	_		+-	+-	+-
Est. Final Pro	j. Sam	pling Dat	te		7000-	20			#/Type Container		Solid	HG	1144	111/1		Inc		╌╫╴	+	+	_	_	+-	+-	+
Project #			CLO-	<u></u>	TEPEL	00					Liquid	40	11	111		150		50	Δ.	$\neg$		<b>→</b>	<b>-</b>	1	+
Project Conta				70-	<del></del> -				Volum	•	Solid	10		100	_	I C		-						1-	
Lionville Labo					70	<u> </u>			Preser	vatives		-	-	-		_									
<u> </u>		Dei	<u> </u>		<del></del>	<del>- 1</del>		_=_		veec			<del></del>	ANIC		1		-	NORG	<u>"</u>					
Date Rec'd	4	- <del>2</del> 00	1	Date Due	40	701			REQUI	ESTED	-	Š	BNA	PCB	Herb	1				5	}	}		}	
Date Nec d							T	•	<b> </b>	T		-	<u> </u>		<del>-</del>	ــــــــــــــــــــــــــــــــــــــ	Lionville			Use (	Only		<u> </u>	ــــــــــــــــــــــــــــــــــــــ	
MATRIX CODES: S - Soil , SE - Sediment SO - Solid	Lab ID		CII	lent ID/Desc	ription	ption		Matrix QC Chosen (V)		Date Collected	Time Collected	HHAND	ACSSA0	OPCB		#GH		Char	)						
SL - Sludge W - Water	8	B11-	TVR	\	<del></del>				0	4-16-01	OP07	/													
O - Oii A - Air	$\frac{1}{2}$	1	79				<del>                                     </del>			1.00	0835									$\neg$				T	
DS - Drum Solids	<u></u>			•						1-1	0110				<u> </u>										
DL - Drum Liquids	CQ1	1 1	_ w				<del>                                     </del>		1		1950				_	,			,						
L - EP/TCLP Leachate	المحمد	<del>' </del> -		<del></del>					l		10.0			~											
WI - Wipe X - Other		1								<del> </del>						<del> </del>		1		_			†	1.	<del> </del>
F - Fish							_		<del></del>	<del> </del>								1	7	_		_	<del>                                     </del>	†	<del> </del>
		1								1			<del>                                     </del>			<del>[                                    </del>					$\neg$		1	$\dagger$	<del>                                     </del>
		<del> </del>								<del>                                     </del>								$\top$	$\top$	_		_	<del> </del>	†	<del>                                     </del>
j	<del></del>			<del></del>					ļ. <del></del>	<del>                                     </del>		-			_	<del> </del> -		+		_	_		<del>                                     </del>	$\dagger -$	<del>                                     </del>
Special Instructi	ons:	508	(A)	01:00	03			DATE/	REVISIO	NS:			L			<u></u>		<u>,                                    </u>	═┷═	Llo	nville L	aborato	y Use C	inly	<del></del>
Ryn Y								Yk!	L	1.AL.A. 2.M.G.	Mork Mork 1. Ho		Ωi 30.0		ר'ק' סיכ	ር,ርኒ . <mark>ረ</mark> ጉ,	ntr, r AS,P	- 1	1) Shi Hand Airbill	# . <u></u>	ed	. <b>;</b>	) Presei ackage	sistant Se nt on Ou (Y) or ken on (	uter N
								4.27	-01	4. Ma	rix e	han	deel	to	W	ver	Per PM	4	2) Am	bient o	Chilled in Good	~		Y or nto a Sa o y o l	ample
				•						5 6							·	_	Condit 4) Sar	ion (C nples	or N	4	) Unbrol iample (	_	
Relinquished	T	Receive by	ed	Date	Time	Re	linquis by	hed	$T^{-1}$	Received	D	ate	Tim	ю.			s Between	1	rrope	rty Pres	) or N			cord Pre	
FOEX		Бфр	rl_	1070514	OSPO			SITE	by		RIGIN	IAL.				Samples Labels and COC Record? Y or NOTES:				eived t g Time (y		(	Upon Sample Rec't (Y / or N Cooler Temp. (1) - 1 . °C		

Bechtel Hanf	ford Inc.	CI	HAIN OF CUST	REQU	JEST	ĺ	B0	1-063-4	Page 1	01 ]				
Collector THOMAS GS		Compa	any Contact RCH JA	Telephon					Coordinator	Pr	rice Code	3D	Data Tu	rnarouad
Project Designation 600-23 Anomalous Waste	Characterization - Other Lie		ling Location 0-23 DIG SITE					SAF No. B01-063		Air Quality []			7 days	
Ice Chest No. RHI	-94 zc		Logbook No. -1518	RUGO.	Method of Shipmen FED EX									
Shipped T TMA/RECRA		7	e Property No.	D102				Bill of L	ading/Air Bill	) ا	195	4-	-38	D8
POSSIBL <del>E S</del> AMPLE HAZ	ZARDS/REMARKS	_	Preservation	Cool 4C	None	B Cool 4C								
		1	Type of Container	Gs*	AG	` aG								]
		1	No. of Container(s)	1	<del>"</del> "	1		$\neg$						
Special Handling and/or S	itorage	1	Volume	40mL	120mL	1000mL							i i	
	SAMPLE ANALY	YSIS		VOA - \$260A (TCL)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL)								
	<u> </u>	·								رام		125 maria - 15-11-	-	
Sample No.	Matrix *	Sample Date	Sample Time		· PP特/		77					<b>新</b> 带。		STATE OF
B11TV8	OTHER LIQUID	4/16/01	0867	x	×	×	<u> </u>		<u>                                      </u>		1:	<del> </del>	<del> </del>	<del>-</del>
B11TV9	OTHER LIQUID	4//4/01		X	~	<u>×</u>	<b> </b>		<u>B</u> 11			┼──	<del> </del>	ļ
B11TW0	OTHER LIQUID	4/16/01	0910	<u>×</u>	X _	×			<u>                                      </u>	<i>7 v</i>	2	<u>                                     </u>	+;	
CHAIN OF POSSESS	SION	Sign/Print		4/1/0/01	SPEC	CIAL INSTR	UCTIV	ONS						Matrix *
Removed By Remove	Date/Time (530)	Stone In R	R4 28 4/14   RThores	ate/Time 153	3C								•	S Soil SI: Solinem SI: Solid S Shrige W Water O Oil
Relinquished By	Date/Time CASC		)4V	ate/Time		Sami	ples st	ored in R	lef.# <u>213</u> at	the	3728			A Air 198: Drum Solide 18 Drum Liquids 1 Tissue 3.1 Wipe
Relinquished By	Date/Time	Received By		of OTC ate/Time	<u>0</u> *	Colle	ector n	iot availal	ble to relinguor shipment.	uish :	samples .			l Liquid V Vejectation X 4 Mhcs
Refinquished By	Date/Time	Received By	Da		" LIII (1)						,			
LABORATORY Received SECTION	Ву			Titl	ė							f)	Date/l'ime	
FINAL SAMPLE Disposal DISPOSITION	Method					Dispos	sed By					1	Date/Time	

Collegras GS	11		nany Contact RCH JA		phone No. 9-373-5904			TRENT, SJ		rice Code	_				
Project Designation 600-23 Anomalous Waste	Characterization - Other	Samp Liquid 60(	ling Location 1-23 DIG SITE					SAF No. B01-063	٨	ir Quality		7 day	5 <u>[</u>		
Ice Chest No. BHI	-94 (z	- ( Field	Logbook No. -1518		COA R600232E	00		Method of Shi FED EX							
Shipped To TMA/RECRA		Offsit	e Property No.	f47C	250	<b>5</b> /		Bill of Lading	Ais Bill No	1951	+	4	si men		
POSTIBLE SAMPLE HAZ	'ARDS/REMARKS		Preservation	None	None Pr 4\Ale	Cool 4C			Sample original Page 2 of	inally sent to	RCF for o	ion site analy: ansfer to RC	i Sis. Tr_		
			Type of Container	P	-GA-	≱G			The sample labeled for (	was picked : off-site analy	up from RC sis. A new	F and re- COC was			
			No. of Container(s)	<u> </u>	E3	1	<u> </u>		Page 📘 of _	Z represen	opriate off site custody transfer. resents custody transfer to RT_				
Special Handling and/or St	orage		Volume	120mL	200 WI	1000mL			offsite IADor	atory for dis	ected analy	sis.	4/19/01		
				pH (Soil) - 9045	See item (1) in Special	PCBs - \$082							]		
	SAMPLE ANAI	LYSIS		1	lestructions.	}	1	1	}	}	}	}	1		
							}			Vical To			}		
Sample No.	Matrix *	Sample Date	Sample Time		<b>2. 种种</b>	<b>拉斯</b> 洛军	建工	21 (新建)		列學學	E PARTY	<b>188</b> 3	<b>建</b>		
B11TW1	OTHER LIQUID	4/14/01	1220	X	[x	X			ļ	BILTY	<u>}                                    </u>	<u> </u>			
B11TW2	OTHER LIQUID	ET 4/19/C			<u> </u>		<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<del></del>		
	<u> </u>	<u></u>	<u> </u>	<del> </del>	<del> </del>		<b> </b> _		<u> </u>	<u> </u>	<del>{</del>	<del></del>	₽		
	<del>                                     </del>	<del></del>		<del> </del>	<del> </del>	<b> </b>	<del> </del>		<b></b> _	<b></b>	<del> </del>	<del> </del>	<del> </del>		
CHAIN OF POSSESSI	108	Sign/Prin	· Names // Se	4/46/01	LIGHE	CIAL INSTR	L	) Ne	<u></u>	<u> </u>	1	<del></del>	Matrix *		
Kelinquished By	Date/Time / 3	30 Received By Co	7 Hours Of De	4/46/07 Pate/Time 15	34				104 (Add)	fårmenia 1 ma	· Calaniu T	M - 182 6 .	S Soll		
ang thomas trus,	16mes 416101	7 1 22E	213 71/9/0	<u> </u>	Merci	LP Metals - 60: ury - 7470 - (C		L); ICP Metals - 60	IVA (Add-on)	(Atgenic, Lea	1, Зененцив, 1	naliium j ;	SI -Sediment S/2-Sedid		
Kel 13	128 41916	- 1/7	KINGren	ate/Time (c):									S - Shutge W = Water O ON		
Hetimunished By RTV	TOC: Date/Time O(3)		Di Di	ate/Time	$\neg$			•	n			:	A Ale 125 : Dram Solids		
Relinquished By	Date/Time	Received By	)4->C	ale/Time		Sample	es store	ed in Ref.#_2 ility on _4_/	Dat the 3	728			III.=Drum Liquids T. Tissue		
Feder 4i	20101 0920	1150	12001 A2001	_09≥C		Collect	tor not	available to re	elinquish s	amples			WI: Wipe L. Liquid V. Vegetation		
Relinquished By	Date/Time	Received By	/ / Da	ate/Time		on 💾	h1 $a$ 1	/ () for ship	ment	KT	411916	4	X (Alter		
Relinquished By	Date/Time	Received By	Dz	ate/Time						41166	-				
LABORATORY Received   SECTION	Ву			Tit	le				<del></del>		1	Date/Time			
FINAL SAMPLE Disposal N	Method				<del></del>	Dispo	sed By	<u></u>			- <u>-</u>	Date/Time			
DISPOSITION								••							